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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,035	10/31/2003	John Francis Bateman	A36056-PCT-USA-A	3842

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EXAMINER	
HADDAD, MAHER M	

ART UNIT	PAPER NUMBER
1644	

NOTIFICATION DATE	DELIVERY MODE
02/01/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/699,035	BATEMAN ET AL.	
	Examiner	Art Unit	
	Maher M. Haddad	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4,5,12,43 and 44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4,5,12,43 and 44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/31/07 has been entered.

2. Claims 4-5, 12, 43-44 are pending and under examination.

3. The amendment filed 10/31/07, is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The new Sequence Listing in both the electronic submission and the amendment to the specification on page 1. The new Sequence Listing introduces the "GAY" codon at position 631-633 in SEQ ID NO: 5 represents a departure from the specification and the claims as originally filed. Applicant points out to Figure 6 for support. However, there is no Figure 6 in the instant specification. Furthermore, paragraph [0153] of the specification was amended on 10/02/06 to delete "~~The nucleotide sequence (SEQ ID NO: 5) and corresponding amino acid sequence (SEQ ID NO: 6) are shown in Figure 6~~." Finally, if there is Figure 6, the Figure would provide either GAT or GAC codon but not GAY codon. Accordingly, there is no support in the specification for the addition of the new codon in SEQ ID NO: 5. The specification and the claims as originally filed have no support for the new replacement of SEQ ID NO: 5.

Applicant is required to cancel the new matter in the reply to this Office action.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A) The recitation that the polypeptide encoded by the "a nucleotide sequence capable of hybridizing to full-length SEQ ID NO:5" (i.e., antisense/complement) is ambiguous. The translation of the complementary (antisense) sequence of the nucleic acid sequence of SEQ ID NO: 5 does not encode WARP. Only the "sense sequence" would code for the claimed protein.

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 4-5 and 43-44 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification as originally filed does not provide support for the invention as now claimed. *This is a New Matter rejection for the following reasons*:

The sequence "SEQ ID NO:5" claimed in claims 4-5 and 43-44 represents a departure from the specification and the claims as originally filed.

Applicant's amendment filed 10/31/07 points to the specification at ¶¶ 71 and 153 for support for the newly added codon in SEQ ID NO:5. However, the specification does not provide a clear support for the new sequence. There is no Figure 6 in the specification to show the nucleotide sequence (SEQ ID NO: 5) and corresponding amino acid sequence (SEQ ID NO: 6) to determine which codon corresponding to ^{211}Asp. The specification failed to disclose the correct DNA coding sequence because the original sequence of the DNA missing a codon for Asp^{211}. See *Ex parte Maizel*, 27 USPQ2d 1662 (Bd. Pat. App. & Interf. 1992). Applicants are permitted to amend their specification to disclose the inherent codon structure of the DNA that they had isolated, however, no biological deposit of the DNA or Figure 6 to indicate the inherent codon encoding Asp^{211}. Further, the presence of Asp^{211} in SEQ ID NO: 6 in the original specification could be erroneously deduced. The instant claims now recite limitations which were not clearly disclosed in the specification and recited in the claims as originally filed.

8. Claims 4, 12 and 43-44 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not reasonably provide enablement for an isolated polypeptide, wherein the polypeptide is a von Willebrand Factor A-related Protein (WARP) encoded by the nucleotide sequence selected from the group consisting of: (i) a nucleotide sequence as set forth in SEQ ID NO: 5; and (ii) a nucleotide sequence capable of hybridizing to full-length SEQ ID NO: 5 or the complement of SEQ ID NO: 5 under high stringency conditions of 0.1 x SSC buffer, 0.1% w/v SDS at a temperature of at least 65°C in claim 4, wherein the polypeptide is encoded by SEQ ID NO: 5 in claim 5 or an isolated polypeptide comprising a von Willebrand Factor A- Related Protein and having an amino acid sequence set forth in SEQ ID NO:6 in claim 12, or an isolated polypeptide, wherein said polypeptide comprises a von Willebrand Factor A-Related Protein

(WARP) encoded by the nucleotide sequence selected from the group consisting of: (i) a nucleotide sequence having at least about 95% similarity to SEQ ID NO: 5, and (ii) a nucleotide sequence having at least about 99% similarity to SEQ ID NO: 5 in claim 43, wherein the nucleotide sequence is at least 99% similar to SEQ ID NO: 5 in claim 44.

The specification disclosure does not enable one skilled in the art to practice the invention without an undue amount of experimentation.

Factors to be considered in determining whether undue experimentation is required to practice the claimed invention are summarized *In re Wands* (858 F2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)). The factors most relevant to this rejection are the scope of the claim, the amount of direction or guidance provided, the lack of sufficient working examples, the unpredictability in the art and the amount of experimentation required to enable one of skill in the art to practice the claimed invention.

Claim 4(ii) recites a polypeptide encoded by a nucleotide sequence capable of hybridizing to a the complement of SEQ ID NO: 5. However, the fact that two nucleic acid sequences will hybridize under moderate or stringent conditions does not in and of itself require that the two sequences share any functional activity. Thus the same observations apply to the recitation of "a nucleotide sequence that hybridizes under high stringent hybridization conditions". Further, it was well known in the art at the time the invention was made that hybridization could occur between two sequence based upon short stretches of 100% identity. Thus a great deal of sequence variability with respect to the full-length nucleic acid is possible. The recitation of hybridization language in the absence of *a testable function* and limitations regarding both the hybridization conditions and the *sequence length over which the hybridization takes place*; does not allow the skilled artisan to make and use the hybridizing nucleic acids commensurate in scope with the instant claims without undue experimentation.

The art acknowledges that function cannot be predicted based solely on structural similarity to a protein found in the sequence databases and recognized that it was unpredictable if any functional activity will be shared by two polypeptides having less than 100% identity over the full length of their sequences. Attwood (Science 2000; 290:471-473) teaches that "[i]t is presumptuous to make functional assignments merely on the basis of some degree of similarity between sequences. Similarly, Skolnick et al. (Trends in Biotech. 2000; 18(1):34-39) teach that the skilled artisan is well aware that assigning functional activities for any particular protein or protein family based upon sequence homology is inaccurate, in part because of the multifunctional nature of proteins (e.g., "Abstract" and "Sequence-based approaches to function prediction", page 34). Even in situations where there is some confidence of a similar overall structure between two proteins, only experimental research can confirm the artisan's best guess as to the function of the structurally related protein (see in particular "Abstract" and Box 2). Finally, even single amino acid differences can result in drastically altered functions between two proteins. Thus it is unpredictable if any functional activity will be shared by two polypeptides having less than 100% identity over the full length of their sequences.

Applicant's arguments, filed 10/31/07, have been fully considered, but have not been found convincing.

Applicant's arguments submitted 10/31/07 did not address the above issues.

9. Claims 4, 12 and 43-44 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant is not in possession of an isolated polypeptide, wherein the polypeptide is a von Willebrand Factor A-related Protein (WARP) encoded by the nucleotide sequence selected from the group consisting of: (i) a nucleotide sequence as set forth in SEQ ID NO: 5; and (ii) a nucleotide sequence capable of hybridizing to full-length SEQ ID NO: 5 or the complement of SEQ ID NO: 5 under high stringency conditions of 0.1 x SSC buffer, 0.1% w/v SDS at a temperature of at least 65°C in claim 4, wherein the polypeptide is encoded by SEQ ID NO: 5 in claim 5 or an isolated polypeptide comprising a von Willebrand Factor A- Related Protein and having an amino acid sequence set forth in SEQ ID NO:6 in claim 12, or an isolated polypeptide, wherein said polypeptide comprises a von Willebrand Factor A-Related Protein (WARP) encoded by the nucleotide sequence selected from the group consisting of: (i) a nucleotide sequence having at least about 95% similarity to SEQ ID NO: 5, and (ii) a nucleotide sequence having at least about 99% similarity to SEQ ID NO: 5 in claim 43, wherein the nucleotide sequence is at least 99% similar to SEQ ID NO: 5 in claim 44.

The specification failed to disclose the correct DNA coding sequence because the original sequence of the DNA missing a codon for Asp^{211}. The amino acid sequence set forth in SEQ ID NO: 6 may be erroneously deduced. While Applicant is trying to amend the specification to include the missing codon, however, Applicant has not shown that the presence of the missing codon in SEQ ID NO: 5 is inherent property. While Applicant declares that the missing codon is an error. However, applicant did not state what kind of error was it.

Further, Applicant did not describe the invention of claimed 5 and 43-44 sufficiently to show they had possession of the claimed genus of polypeptides encoded by a nucleotide sequence having at least about 95%/99% similarity to SEQ ID NO: 5. Applicant has sequenced one nucleic acid sequence falling within the scope of the claimed invention. None of these sequences varies at least about 95%/99% similarity to SEQ ID NO: 5 and thus these sequences are not representative of the genus.

Consequently, conception cannot be achieved until a representative description of the structural and functional properties of the claimed invention has occurred, regardless of the complexity or simplicity of the method. Adequate written description requires more than a mere statement that it is part of the invention. See *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (CAFC1993). The

Guidelines for the Examination of Patent Application Under the 35 U.S.C.112, ¶ 1"Written Description" Requirement make clear that the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species disclosure of relevant, identifying characteristics, i.e., structure or other physical and or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the genus (Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 20001, see especially page 1106 3rd column).

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the written description inquiry, whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116.). Consequently, Applicant was not in possession of the instant claimed invention. See University of California v. Eli Lilly and Co. 43 USPQ2d 1398.

Applicant is directed to the final Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

Applicant's arguments, filed 10/31/07, have been fully considered, but have not been found convincing.

Applicants submit that the specification provides ample support for the terms "95% homology" and "99% homology." The specification in paragraph [0051] of the '349 publication defines "homolog" as including "an analogous polypeptide having at least about 65% similar amino acid sequence from another animal species or from a different locus within the same species." Further, as disclosed in paragraph [0144] of the '349 publication, "[t]he human homolog of WARP was identified by searching the genome data with the mouse WARP protein sequence. A match with a predicted protein sequence (hypothetical protein FLJ22215) with very high homology to the mouse WARP was found .... These sequences are clearly homologs of each other because they share 79% amino acid identity (see FIG. 1C). In addition, if conserved changes are considered in the analysis, they share 95% identity" (emphasis added).

Applicant concluded that Applicants provide written description for "homolog" and a mouse and a human WARP sequence that are 79% identical, or 95% identical of conserved amino acids are considered, Applicants respectfully submit that the presently amended claims satisfy the written description requirement. Applicants disagree with the Office Action that an insufficient number of species is disclosed. Applicants disclose a human and a mouse WARP protein. Areas of sequence identity and similarity are shown in Figure 1C. Given that Applicants provide adequate written description for "homolog" and a mouse and a human WARP sequence that are 79% identical, or 95% identical of conserved amino acids are considered.

It is noted that the clamed WARP is the human WARP not the mouse WARP. Figure 1c teaching only 79% identical sequence not about 95%/99% similarity to SEQ ID NO: 5. Further, Applicant's disclosure of additional sequences in the instant specification appear to be limited to fragments of the human and murine WARP and therefore do not provide additional insight into the identification of a representative number of species to provide written support for the broadly claimed genera. The hypothetical protein FLJ22215 is only 233 amino acids while claimed polypeptide is 418 amino acids in length.

The specification neither discloses any such variants nor provides any suggestion as to how such 95%/99% similar sequences to SEQ ID NO: 5 could be made or otherwise obtained other than by trial-and-error research.

10. No claim is allowed.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maher Haddad whose telephone number is (571) 272-0845. The examiner can normally be reached Monday through Friday from 7:30 am to 4:00 pm. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen B. O'Hara can be reached on (571) 272-0878. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

January 25, 2008

Maher Haddad

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